2019 Novel Coronavirus (COVID-19) Response: Optimizing Use of Personal Protective Equipment (PPE)

Background

The Centers for Disease Control and Prevention (CDC) recommends the use of a hierarchy of controls in healthcare settings to prevent transmission of 2019 Novel Coronavirus (COVID-19) infections, which are caused by the virus SARS-CoV-2. These include:

Control Type	Description
Engineering	Reduce exposures by placing a barrier between health care personnel and the people who may be infected. Engineering controls can be very effective as part of a suite of strategies to protect healthcare workers (HCW) without placing primary responsibility of implementation on them (i.e., they function without HCW having to take an action).
Administrative	Refers to employer-dictated work practices and policies that reduce or prevent hazardous exposures. Their effectiveness depends on employer commitment and HCP acceptance and consistent use of the strategies.
Personal Protective Equipment (PPE) and Respiratory Protection	The use of PPE should also be part of a suite of strategies used to protect personnel. Proper use of respiratory protection by HCW requires a comprehensive program (including medical clearance, training, and fit testing) that complies with Occupational Safety and Health Administration's (OSHA) Respiratory Protection Standard and a high level of HCW involvement.

Healthcare personnel should adhere to **Standard**, **Contact**, and **Airborne Precautions**, including the use of eye protection (e.g., goggles or a face shield) when caring for patients with COVID-19 infection. These precautions include the use of the following PPE:

✓ NIOSH approved fit-tested N-95 respirator or higher such as a powered air-purifying respirator (PAPR)	✓ Eye protection (e.g., goggles, or a disposable face shield that covers the front and sides of the face)
✓ Isolation gown	✓ Clean, nonsterile gloves

Engineering Controls

- Patients with known or suspected COVID-19 should be placed in an airborne infection isolation room (AIIR) that has been constructed and maintained in accordance with current guidelines.
  - In spaces not currently designated for AIIR, consider heating, ventilation, air conditioning (HVAC) capacity to manipulate airflow, consider direction of air flow, filtration and exchanges rates.
- Reduce HCW exposures to ill patients through placement of physical barriers. Examples include as glass/ plastic windows in reception areas where patients may first report or arrive to health-care facility and the use of curtains between patients in shared areas and closed suctioning systems for airway suctioning for intubated patients.

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Administrative Controls

Before Patient Arrives at Healthcare Facility

- *Limit number of patients going to hospital or outpatient settings.* Develop mechanisms to screen patients for acute respiratory illness prior to their non-urgent care or elective visits or procedures, such as through the appointment reminder system. Triaging persons to the appropriate level of care will reduce the influx of patients to healthcare facilities seeking evaluation.
- *Practice telehealth*. Use nurse advice lines and telemedicine to screen and manage patients who may be infected with COVID-19.
- *Postpone and reschedule visits*, especially for those with COVID-19 symptoms presenting for these non-acute visits.
- *Limit the unanticipated arrivals of symptomatic stable persons to healthcare facilities* by conducting active outreach to symptomatic patients (e.g., Ecare message reminders for patients).

During Healthcare

- *Source control.* Patients with symptoms of respiratory infection should wear a facemask (i.e., surgical or procedure masks). Patients with symptoms should not use N95 respirators.
- *Limit face-to-face HCW encounters with patient.* Approaches to minimize the number of HCW providing direct care to patients with known or suspected COVID-19 include:
  - Bundle patient care activities.
  - Use of tablet, telephone, computer, and cell phone for verbal and video communication.
  - Develop visitor exception policies based on end-of-life situations or other situations when visitor is essential to the patient's emotional well-being.
- *Cohorting patients and HCW*. Cohorting is the practice of grouping together patients who are infected with the same organism to confine their care to one area and prevent contact with other patients. Cohorts are created based on clinical diagnosis, microbiologic confirmation when available, epidemiology, and mode of transmission of the infectious agent. Assigning designated teams of HCW to provide care for all patients with suspected or confirmed COVID-19 could minimize respirator use.

Strategies for Optimizing PPE Use

- Minimize contact with people who may be infected through engineering and administrative controls.
- Use alternatives to N95 respirators (e.g., other classes of filtering facepiece respirators, elastomeric half-mask and full facepiece air-purifying respirators, powered air-purifying respirators) where feasible.
- Implement practices allowing extended use and/or limited reuse of N95 respirators and PAPRS, when acceptable.
- Prioritize use of N95 respirators for those HCW at the highest risk of acquiring infection.
- Consider pausing mandatory HCW masking polices for asymptomatic employees who did not receive the influenza vaccine.
- Conserve facemasks by limiting use to symptomatic patients.
- Prioritize locations of masks to prevent theft (e.g., reception staff provide masks to symptomatic patients).

Resources

- CDC Strategies for Optimizing the Supply of N95 Respirators: https://www.cdc.gov/coronavirus/2019-ncov/hcp/respirator-supply-strategies.html
- NIOSH Guidance for Extended Use and Limited Reuse of N95s: https://www.cdc.gov/niosh/topics/hcwcontrols/recommendedguidanceextuse.html

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